Directed Energy Test and Evaluation Capability

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To date, DETEC has successfully delivered eight capabilities – HEL TSP, HEL TREM, HEL GTIM, HPM TTSS, HPM SS, HPM THP, HPM PEM, and HPM TSM – as well as acquiring two HPM SWBTS, completing two HPM NBTS subsystems (NBTS-A and NBTS-C), completing the HEL ATIM Risk Reduction, and completing the 2007 T-SS Update Final Report. Interested parties may request these items for DE-related T&E activities.

Interested parties can request the HEL TSP, HPM TTSS, the T-SS Update Final Report, and the HPM TSM Database from the DETEC website (www.detecteam.org).

The HEL TREM and HEL GTIM Capabilities are both located at their host site, High Energy Laser Systems Test Facility (HELSTF). Several HEL programs are expected to use these capabilities for testing in the upcoming months. Those interested in using HEL TREM or HEL GTIM for testing may contact Nahim Flores at 575-79-5002 or floresn@smdchl.smdc.army.mil.

The HPM SS, HPM NBTS-A, HPM NBTS-C, and one of the HPM SWBTS are also available for use and are located at White Sands Missile Range (WSMR). Those interested in using these capabilities for testing may contact Russ Blundell at 575-678-5584 or Russell.Blundell@us.army.mil.

The HEL ATIM Testbed is also located at and available for use at WSMR. Those interested in using the HEL ATIM Testbed for testing may contact Chris Beairsto at 575-679-5551 or Chris.Beairsto@smdchl.smdc.army.mil.

The second HPM SWBTS is available for use at Patuxent River Naval Air Station. Programs interested in using this source may contact John Crim at 301-757-3612 or John.Crim@navy.mil.

The HPM THP and HPM PEM are available for use and are located at Point Mugu, CA. Those interested in using the HPM THP or HPM PEM for testing may contact Terry Battalino at 805-989-0125 or Terry.Battalino@navy.mil.

For More Information

Please visit our website at www.detecteam.org

Or contact:

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T&E Infrastructure

DIRECTED ENERGY TEST & EVALUATION CAPABILITY DETEC

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The Directed Energy Test and Evaluation Capability (DETEC) project is funded by the Central Test and Evaluation Investment Program (CTEIP) to address joint service directed energy weapon systems test and evaluation (T&E) infrastructure needs and implement solutions to these identified needs. DETEC develops and fields capabilities to address high-priority shortfalls identified in the 2003 CTEIP-funded Tri-Service Study (T-SS), which defined, scoped, and prioritized T&E infrastructure shortfalls. Overall the study identified 88 shortfalls, of which 37 were labeled as high-priority shortfalls. These high-priority shortfalls formed DETEC's seven high power microwave (HPM) and five high energy laser (HEL) capabilities that serve as the foundation of DETEC's mission.

T-SS Updates

With ever-advancing technology and the inability to address all 88 identified shortfalls, the need continues to study the directed energy T&E community and identify new shortfalls and changes in priorities. With this in mind, CTEIP funded both a T-SS Update study completed in 2007 and one that commenced in June 2009 with results expected in early 2011. The 2007 T-SS Update revisited the DE T&E infrastructure requirements, revalidated previously identified shortfalls, and identified new and unique requirements, capabilities, shortfalls, and solutions. The new T-SS 2011 will do the same as the 2007 T-SS, but provide more current shortfalls that DETEC can potentially address starting in FY12.

Systems Integration Contractor

The DETEC Systems Integration Contractor (SIC), Science Applications International Corporation (SAIC), implements the DETEC project by working with Government and industry teammates to develop functional specifications for certain DE T&E infrastructure capabilities. The SIC acquires these capabilities in competitive procurements and integrates the capabilities into the Major Range and Test Facility Base (MRTFB) to help meet the testing requirements for current and future HEL and HPM weapon systems.

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High Energy Laser Capabilities

HEL Target Subsystems Protection (TSP)

A handbook containing information that describes techniques, analysis methods, and tools that provide a tailored target subsystem protection solution when applied by the user to address a test specific subsystem installed in a tactical target for a specific HEL weapon test scenario. *Developer: SPARTA, Inc. of Huntsville, AL. Completed: May 2006*

HEL TREM

HEL Target Reflected Energy Measurement (TREM)

Thirty autonomous units that are used to provide time-stamped measurements of the reflected in-band laser weapon's power from a target. *Developer: Science Applications and Research Associates, Inc. (SARA), of Cypress, CA. Completed: December 2007*

HEL Target Surface Temperature Measurement (TSTM)

Requirements identified for a future system to provide a time-stamped measurement of the temperature distribution of external target surfaces being directly irradiated and heated by lasers. *Capability not awarded due to high technological risk. Currently being addressed in Science and Technology efforts.*


HEL GTIM

HEL Ground Target Irradiance Measurement (GTIM)

A device that measures continuous wave (CW) laser power per unit area (irradiance) incident on a stationary target located on the ground and engaged by a laser system that is either stationary or moving, on the ground or in the air. *Developer: SARA of Cypress, CA. Completed: July 2007*


HEL ATIM Interim

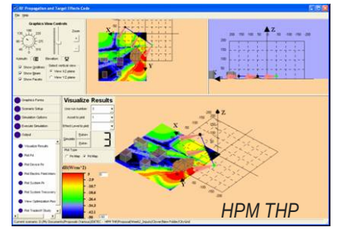
HEL Airborne Target Irradiance and Imagery Measurement (ATIM)

An interim solution that addresses a need for an instrument to collect high-resolution imagery across several spectral bands on a realistic airborne target. DETEC did not find a technically mature solution that would satisfy the requirement of this capability; a risk-reduction approach provides an interim solution. *Risk reduction effort was headed by White Sands Test Center. Completed: August 2009*

High Power Microwave Capabilities

HPM Test Hazard Prediction (THP)

A software tool that makes real-time predictions of where HPM beams may propagate beyond the target during open-air, live-fire HPM testing in all environments. *Developer: Alliant Techsystems (ATK) – Mission Research of Albuquerque, NM. Completed: November 2008*



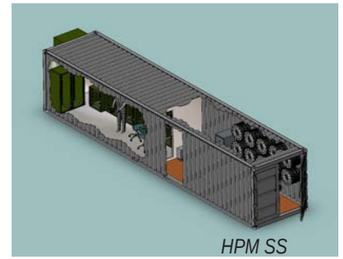
HPM THP

HPM Test Target Subsystems Surety (TTSS)

A document entitled "A Guideline for TTSS Methodology" that provides methods and tools to protect test target subsystems (telemetry, flight termination, and flight control systems) while being tested in an HPM scenario. *Developer: Sol Oriens (S-O), LLC of Albuquerque, NM. Completed: October 2007*

HPM Sensor Suite (SS)

An equipment suite that contains a data acquisition control and analysis subsystem and supports real-time simultaneous acquisition from up to thirty field sensors and non-real-time measurements at up to ten remote locations in support of target effects testing, source characterization, and propagation studies. *Developer: EG&G Technical Services, Inc. of Albuquerque, NM. Completed: October 2008*

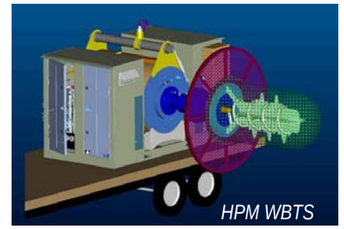

HPM SS

HPM Wideband Threat Systems (WBTS)

A surrogate source that accurately portrays wideband HPM characteristics. *Developer: L-3 Pulse Sciences of San Leandro, CA. Projected availability: Fall 2010*

Small Wideband Test Source (SWBTS)

Two commercially available sources that provide a principle frequency in the range of 100 MHz—300 MHz. *Completed: October 2007 and March 2009*


HPM WBTS

HPM Narrowband Threat Systems (NBTS)

Several surrogate HPM sources that accurately portray narrowband HPM characteristics. Currently, four subsystems, called HPM NBTS-A, A', B, and C, comprise the HPM NBTS Capability. *Developer: Ktech Corporations of Albuquerque, NM. Projected availability: NBTS- A' – Summer 2010; NBTS-B – Fall 2010;. Completed: NBTS-A and NBTS-C – May 2010.*

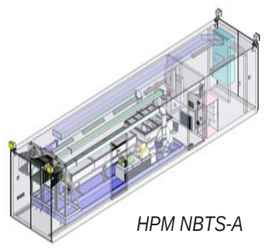
HPM Propagation Environment Measurement (PEM)

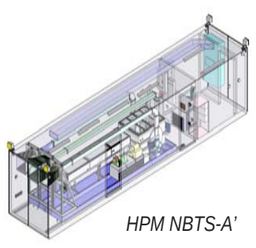
Equipment that measures real-time atmospheric pressure, humidity, and temperature profiles, ocean surface wave characteristics, water temperature, and soil surface electrical characteristics using a tethersonde and buoy. *Developer: ATK-Mission Research of Albuquerque, NM. Completed: November 2008*


HPM SWBTS

HPM Target Surrogate Materials (TSM)

A database containing information about surrogate materials that can be used to replace energetic materials such as explosives, fuel, and solid propellants during HPM testing. *Developer: SAIC Advanced Technologies and Solutions (AT&S) of Albuquerque, NM. Completed: June 2009*


HPM NBTS-A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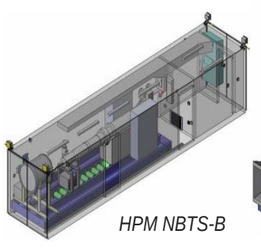
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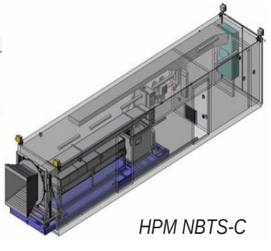
HPM NBTS-C